

ABSTRACT OF THE DISCLOSURE

A diffraction element having concave/convex-like diffraction gratings in its two surfaces from which at least two separated light beams can be taken in the same 5 direction without changing largely the propagating direction of diffracted light even if the temperature of the operating environment changes. A diffraction grating having a concave/convex shape in cross-section is formed in the incoming-side surface of the transparent substrate 10 and two diffraction gratings of concave/convex shape in cross-section are formed in the outgoing-side surface wherein the grating pitch of the first one is made equal to the grating pitch of one of the second ones.

In addition, a reflection type diffraction element 15 exhibiting a good wavelength dependence of diffraction efficiency without being dependent largely on the direction of polarization of an incoming light is provided. A pseudo sawtooth-like diffraction grating is formed in either surface of the transparent substrate, a 20 reflective film is formed on a diffraction grating portion, and an antireflective film is formed on the opposite surface.